corresponding photoelectric conversion cell **51** form one G pixel of the image sensor **150**. The B filter element **30**B and a corresponding photoelectric conversion cell **51** form one B pixel of the image sensor **150**.

[0086] FIG. **11** illustrates an image to be acquired by an image acquisition apparatus according to an exemplary embodiment. FIG. **12** illustrates an operation of acquiring the image of FIG. **11***by* using the image acquisition apparatus according to an exemplary embodiment. FIG. **12** illustrates an operation of acquiring an image when the color filter **30** of the Bayer pattern is applied. When the color filter **30** applied to the image acquisition apparatus has other color filter elements, an arrangement of color image portions acquired in the image acquisition operation may vary.

[0087] As shown in FIG. **11**, when an image including an R image portion **300**R, a G image portion **300**G, and a B image portion **300**B is incident to the color filter **30**, if the image is not shifted by the optical path modulation optical element **10**, i.e., shifted by (0, 0), first color image information is acquired by the image sensor **150** as shown in a part (a) of FIG. **12**. The first color image information corresponds to information obtained by hatched color pixels in the part (a) of FIG. **12**.

[0088] When the image is moved by (p, 0) by being shifted by one pixel p in a horizontal-axis direction, i.e., the x-axis direction, by the optical path modulation optical element **10**, second color image information is acquired by the image sensor **150** as shown in a part (b) of FIG. **12**. The second color image information corresponds to information obtained by hatched color pixels in the part (b) of FIG. **12**.

[0089] When the image is moved by (0, p) by being shifted by one pixel p in a vertical-axis direction, i.e., the y-axis direction, by the optical path modulation optical element **10**, third color image information is acquired by the image sensor **150** as shown in a part (c) of FIG. **12**. The third color image information corresponds to information obtained by hatched color pixels in the part (c) of FIG. **12**.

[0090] When the image is moved by (p, p) by being shifted by one pixel p in the horizontal-axis direction, i.e., the x-axis direction, and the vertical-axis direction, i.e., the y-axis direction, by the optical path modulation optical element **10**, fourth color image information is acquired by the image sensor **150** as shown in a part (d) of FIG. **12**. The fourth color image information corresponds to information obtained by hatched color pixels in the part (d) of FIG. **12**.

[0091] Therefore, when the first color image information, the second color image information, the third color image information, and the fourth color image information are acquired in a time division manner and are combined, an acquired image as shown in a part (e) of FIG. **12** is obtained.

[0092] When the incident image of FIG. **11** is compared with the acquired image in the part (e) of FIG. **12**, there is insignificant or low loss of color resolution, and the acquired image is obtained with resolution close to that of the incident image.

[0093] Therefore, according to the image acquisition method according to the present exemplary embodiment, even when the color filter **30** having an array of a plurality of types of color filter elements **30**R, **30**G, and **30**B, e.g., the color filter elements **30**R, **30**G, and **30**B arranged in the Bayer pattern, is applied, a loss of color resolution and total resolution may not occur, and thus, a high-resolution image may be acquired.

[0094] Although it has been described that a color image is acquired by acquiring image information in a time division manner while shifting an image to (0, 0), (p, 0), (0, p), and (p, p) and combining the acquire image information, the present exemplary embodiment is not limited thereto. According to the image acquisition method according to the present exemplary embodiment, a color image may be acquired by acquiring image information in a time division manner while shifting and returning an image position at least once in other various schemes and combining the acquired image information.

[0095] That is, image information for each color may be acquired by detecting light which has passed through the color filter **30** by using the photoelectric conversion cell array **50** in pixel units while electrically controlling the optical path modulation optical element **10** to change an incident position of the image on the color filter **30** having an arrangement of a plurality of types of color filter elements **30**R, **30**G, and **30**B. In this case, image information for each color may be acquired from a plurality of positions in a time division manner by using the photoelectric conversion cell array **50** while changing a position of an image on the color filter **30** at least once by using optical path modulation according to an electrical control of the optical path modulation optical element **10**. Therefore, a high-resolution color image may be acquired by combining the image information for each color acquired from the plurality of positions in a time division manner.

[0096] An image acquisition operation of the image acquisition apparatus according to the present exemplary embodiment has been described by illustrating a case where the color filter **30** has the Bayer pattern including an R, G, G, and B arrangement as shown in FIG. **9**. However, as described above, color filters having various color element pattern arrangements may be applied to the image acquisition apparatus according to the present exemplary embodiment. For example, the image acquisition apparatus according to the present exemplary embodiment may include any one of a color filter **130** of an RGBW pattern and a color filter **230** of an RGB pattern shown in FIGS. **13** and **14** as the color filter **30**. Alternatively, the image acquisition apparatus according to the present exemplary embodiment may include any one of color filters including Y, M, and C filter elements instead of R, G, and B filter elements in FIGS. **13** and **14** as the color filter **30**. That is, the color filters **130** and **230** of FIGS. **13** and **14** may include a YMCW pattern or a YMC pattern.

[0097] FIG. **13** illustrates an arrangement of color filter elements **130**R, **130**G, **130**B, and **130**W in the color filter **130** of the RGBW pattern.

[0098] Referring to FIG. **13**, a basic unit **131** of the color filter elements **130**R, **130**G, **130**B, and **130**W of the color filter **130** having the RGBW pattern may include four color filter elements including, for example, an R filter element **130**R, a G filter element **130**G, a B filter element **130**B, and a W filter element **130**W, i.e., a transparent element without a color filter, and the color filter **130** may have a form in which a plurality of basic units **131**, each including the four filter elements, are two-dimensionally arranged. The color filter **130** having the RGBW pattern corresponds to a color filter in which one G filter element in the color filter **30** of the Bayer pattern is replaced by one W filter element, and may have improved light efficiency.